IN THE CLAIMS

1-20. (Canceled)

21. (Currently Amended) A method of operating an internal combustion engine with homogeneous fuel combustion, wherein a condition variable in a cylinder is determined as a function of a crank angle and a signal about a cylinder condition is obtained therefrom, wherein at least two characteristic cycle values from a group comprising mass fraction of injected fuel burned, maximum pressure increase in the cylinder, combustion noise, start of combustion or duration of combustion are determined from the cylinder condition signal, the determined characteristic cycle values are compared with desired values for the characteristic cycle values entered in a characteristic diagram and a given difference between the two values is computed and the difference is supplied to a regulation algorithm and a time of fuel ignition of at least one injection event or an inert gas fraction in the cylinder is adjusted as a correcting variable in order to stabilize combustion and to minimize noise and exhaust emission, wherein the condition variable is selected from pressure and temperature.

22. (Cancel)

23. (Previously Presented) The method according to claim 21, wherein the characteristic cycle values are determined either from an output signal of a sensor making use of an acoustic, optical, electrical, thermodynamic or mechanical principle of measurement, through a

mathematical model or by combining a sensor-based and a model-based approach.

24. (Previously Presented) The method according to claim 21, wherein a 50% mass fraction of an injected fuel burned and a maximum in-cylinder pressure increase are determined as the characteristic cycle values.

25. (Previously Presented) The method according to claim 21, wherein supply and variation of an inert gas mass within the cylinder is carried out through external exhaust gas recirculation or through in-cylinder exhaust gas recirculation or by combining internal and external exhaust gas recirculation.

26. (Currently Amended) The method according to claim 21, wherein control variables of fuel injection timing of at least one injection event and inert gas fraction within the cylinder are adjusted simultaneously by means of the regulation algorithm.

27. (Previously Presented) The method according to claim 21, wherein a precontrol value that is dependent on an operating condition of the engine and has been entered in a respective characteristic diagram is added to a respective one of the values calculated for the control variables through the regulation algorithm.

28.-41. (Cancel)

42. (New) A method of operating an internal combustion engine, wherein a condition variable in a cylinder is determined as a function of a

crank angle and a signal about a cylinder condition is obtained therefrom, wherein at least two characteristic cycle values from a group comprising mass fraction of injected fuel burned, maximum pressure increase in the cylinder, combustion noise, start of combustion or duration of combustion are determined from the cylinder condition signal, the determined characteristic cycle values are compared with desired values for the characteristic cycle values entered in a characteristic diagram and a given difference between the two values is computed and the difference is supplied to a regulation algorithm and a time of fuel ignition of at least one injection event or an inert gas fraction in the cylinder is adjusted as a correcting variable in order to stabilize combustion and to minimize noise and exhaust emission, and wherein a 50% mass fraction of an injected fuel burned and a maximum in-cylinder pressure increase are determined as the characteristic cycle values.

43. (New) The method according to claim 42, wherein the condition variable is selected from a group comprising pressure, temperature, ion flow and output signal of an optical principle of measurement.

44. (New) The method according to claim 42, wherein the characteristic cycle values are determined either from an output signal of a sensor making use of an acoustic, optical, electrical, thermodynamic or mechanical principle of measurement, through a mathematical model, or by combining a sensor-based and a model-based approach.

45. (New) The method according to claim 42, wherein supply and variation of an inert gas mass within the cylinder is carried out through external exhaust gas recirculation or through in-cylinder exhaust gas recirculation or by combining internal and external exhaust gas recirculation.

46. (New) The method according to claim 42, wherein control variables of fuel injection timing of at least one injection event and inert gas fraction within the cylinder are adjusted simultaneously by means of the regulation algorithm.

47. (New) The method according to claim 42, wherein a precontrol value that is dependent on an operating condition of the engine and has been entered in a respective characteristic diagram is added to a respective one of the values calculated for the control variables through the regulation algorithm.

48. (New) A method of operating an internal combustion engine, wherein a condition variable in a cylinder is determined as a function of a crank angle and a signal about a cylinder condition is obtained therefrom, wherein at least two characteristic cycle values from a group comprising mass fraction of injected fuel burned, maximum pressure increase in the cylinder, combustion noise, start of combustion or duration of combustion are determined from the cylinder condition signal, the determined characteristic cycle values are compared with desired values for the characteristic cycle values entered in a characteristic diagram and a given

difference between the two values is computed and the difference is supplied to a regulation algorithm and a time of fuel ignition of at least one injection event or an inert gas fraction in the cylinder is adjusted as a correcting variable in order to stabilize combustion and to minimize noise and exhaust emission, and wherein control variables of fuel injection timing of at least one injection event and inert gas fraction within the cylinder are adjusted simultaneously by means of the regulation algorithm.

49. (New) The method according to claim 48, wherein the condition variable is selected from pressure, temperature, ion flow and output signal of an optical principle of measurement.

50. (New) The method according to claim 48, wherein the characteristic cycle values are determined either from an output signal of a sensor making use of an acoustic, optical, electrical, thermodynamic or mechanical principle of measurement, through a mathematical model or by combining a sensor-based and a model-based approach.

51. (New) The method according to claim 48, wherein a 50% mass fraction of an injected fuel burned and a maximum in-cylinder pressure increase are determined as the characteristic cycle values.

52. (New) The method according to claim 48, wherein supply and variation of an inert gas mass within the cylinder is carried out through external exhaust gas recirculation or through in-cylinder exhaust gas

recirculation or by combining internal and external exhaust gas recirculation.

53. (New) The method according to claim 48, wherein a precontrol value that is dependent on an operating condition of the engine and has been entered in a respective characteristic diagram is added to a respective one of the values calculated for the control variables through the regulation algorithm.

54. (New) A method of operating an internal combustion engine, wherein a condition variable in a cylinder is determined as a function of a crank angle and a signal about a cylinder condition is obtained therefrom, wherein at least two characteristic cycle values from a group comprising mass fraction of injected fuel burned, maximum pressure increase in the cylinder, combustion noise, start of combustion or duration of combustion are determined from the cylinder condition signal, the determined characteristic cycle values are compared with desired values for the characteristic cycle values entered in a characteristic diagram and a given difference between the two values is computed and the difference is supplied to a regulation algorithm and a time of fuel ignition of at least one injection event or an inert gas fraction in the cylinder is adjusted as a correcting variable in order to stabilize combustion and to minimize noise and exhaust emission, and wherein a precontrol value that is dependent on an operating condition of the engine and has been entered in a respective characteristic diagram is added to a respective one of the

values calculated for the control variables through the regulation algorithm.

55. (New) The method according to claim 54, wherein the condition variable is selected from pressure, temperature, ion flow and output signal of an optical principle of measurement.

56. (New) The method according to claim 54, wherein the characteristic cycle values are determined either from an output signal of a sensor making use of an acoustic, optical, electrical, thermodynamic or mechanical principle of measurement, through a mathematical model or by combining a sensor-based and a model-based approach.

57. (New) The method according to claim 54, wherein a 50% mass fraction of an injected fuel burned and a maximum in-cylinder pressure increase are determined as the characteristic cycle values.

58. (New) The method according to claim 54, wherein supply and variation of an inert gas mass within the cylinder is carried out through external exhaust gas recirculation or through in-cylinder exhaust gas recirculation or by combining internal and external exhaust gas recirculation.

59. (New) The method according to claim 54, wherein control variables of fuel injection timing of at least one injection event and inert gas fraction within the cylinder are adjusted simultaneously by means of the regulation algorithm.